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EXAMINER
HAVAN, THU THAO

ART UNIT	PAPER NUMBER
2672	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/675,515	Applicant(s) CROW ET AL.	
	Examiner Thu-Thao Havan	Art Unit 2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Specification

The abstract of the disclosure is objected to because the abstract should be generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words (please see further explanation below). Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims **1-38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendrickson (US patent no. 5,930,784) in view of Becker (US patent no. 6,034,697).

Re claim **1**, Hendrickson discloses a computer-implemented method for generating graphical surface map visualizations from a set of data records, comprising the steps receiving a plurality of data records (col. 1, lines 10-49); creating vector representations of data records (col. 2, lines 26-36); enabling the user to select from a first surface map generation method and a second map generation method (col. 6, line 18 to col. 7, line 38); generating a first surface map representation corresponding to vector representations in response to selection of first surface map generation method (col. 7, line 41 to col. 8, line 11). In other words, Hendrickson teaches locating related words in geometric space for data mining. The related words are located relative to the relationships among the meaning of the words. Each word is located in the geometric space at coordinates determined from the eigenvectors and eigenvalues. Thus, proper construction of the matrix and proper determination of coordinates from eigenvectors can ensure that distance between words in the geometric space is representative of the numeric value measure of the words' similarity.

Hendrickson fails to specifically disclose generating a second surface map representation corresponding to vector representations in response to selection of second surface map generation method. However, Becker teaches generating a second surface map representation corresponding to vector representations in

response to selection of second surface map generation method (col. 12, line 1 to col. 15, line 50; col. 14-15; figs. 9a-10b). In that the two or more different tables represents different surface map. In addition, the variables correspond to the vector that uses to represent an intermediated position along the slider scale a user chooses. Therefore, it would have been obvious for one of ordinary skill in the art to combine the step of generating a second surface map representation corresponding to vector representations in response to selection of second surface map generation method of Becker to the system of Hendrickson because it would enabled the determination of splat opacity using interpolated weights on different surface map (Becker: col. 12, line 1 to col. 15, line 50; col. 14-15; figs. 9a-10b).

Re claims **2-6**, Hendrickson discloses first and second surface map representation calculate the peak height of surface peak by different methods (col. 8, line 40 to col. 9, line 6; figs. 4a-4e). In other words, Hendrickson calculates the peak height when he discloses the peak grows in then begins to increase in breadth and decrease in height as seen in figures 4a-4e.

Re claims **7-11**, Hendrickson discloses second surface map generation method comprises calculating peak height based on the aggregate value of variable parameters (col. 5, line 65 to col. 6, line 17). The values in Hendrickson correspond to the variable parameters.

Re claim **12**, Becker discloses step of creating vector representations includes generating a two-dimensional vector representation of data records; generating a two-dimensional map representation of data records based on two-dimensional vector

representation; and superimposing two-dimensional map representation on either first or second surface map representation (col. 7, line 23 to col. 9, line 59; col. 14-15; figs. 2-10b). In other words, the opacity levels in Becker correspond to superimposing two-dimensional map representation on surface map representation. In that the scaling of the opacity for each splat to make an entire display image of rendered splats more or less transparent. A splat's opacity is scaled differently depending upon its weight or the number of data points that splat represents.

Re claim **13**, Hendrickson discloses a computer-implemented method for generating graphical surface map visualizations from a set of data records, comprising the steps receiving a plurality of data records (col. 1, lines 10-49); creating vector representations of data records (col. 2, lines 26-36); generating a surface map representation of data records corresponding to vector representations (col. 7, line 41 to col. 8, line 11); and generating a two-dimensional map representation of data records based on vector representations (col. 8, lines 12-37). In other words, Hendrickson teaches locating related words in geometric space for data mining. The related words are located relative to the relationships among the meaning of the words. Each word is located in the geometric space at coordinates determined from the eigenvectors and eigenvalues. Thus, proper construction of the matrix and proper determination of coordinates from eigenvectors can ensure that distance between words in the geometric space is representative of the numeric value measure of the words' similarity. In addition, input from a user can tailor the information displayed to meet the user's specific requirements. For example, user input can direct the selection of an aspect for

display, such as a subset of the geometric space. Additionally, user input can direct the display of only words having certain attributes. Furthermore, user input can direct the display of detailed information about a particular word, such as more complete identification of individual words or more detailed display of specific links among the words. Therefore data mining system can allow user to select only certain portions of the database. For example, the user can direct the display of only items with dates in a certain range or with particular origins.

Hendrickson fails to specifically disclose superimposing two-dimensional map representation on surface map representation. However, Becker teaches superimposing two-dimensional map representation on surface map representation (col. 7, line 23 to col. 9, line 59; col. 14-15; figs. 2-10b). The opacity levels in Becker correspond to superimposing two-dimensional map representation on surface map representation. In that the scaling of the opacity for each splat to make an entire display image of rendered splats more or less transparent. A splat's opacity is scaled differently depending upon its weight or the number of data points that splat represents. Therefore, it would have been obvious for one of ordinary skill in the art to combine superimposing two-dimensional map representation on surface map representation of Becker to the system of Hendrickson because it would have improve the user interface of Hendrickson to allow precise manipulation of graphical objects in opacity method (Becker: col. 7, line 23 to col. 9, line 59; col. 14-15; figs. 2-10b).

Re claim **14**, Hendrickson discloses two-dimensional map representation is a galaxy view (figs. 4a-4e). In figures 4a to 4e, the items are in galaxy view.

Re claims **15-16**, Hendrickson discloses surface map is a landscape map and landscape map representation is a concept landscape visualization (col. 7, lines 60-67). In other words, Hendrickson discloses landscape display can make the overall structure of the relationships among the items readily apparent to the user.

Re claim **17**, Hendrickson discloses a computer-implemented method for generating graphical surface map visualizations from a set of data records, comprising the steps receiving a plurality of data records (col. 1, lines 10-49); creating vector representations of data records (col. 2, lines 26-36); generating a first surface map representation corresponding to vector representations in response to selection of first surface map generation method (col. 7, line 41 to col. 8, line 11). In other words, Hendrickson teaches locating related words in geometric space for data mining. The related words are located relative to the relationships among the meaning of the words. Each word is located in the geometric space at coordinates determined from the eigenvectors and eigenvalues. Thus, proper construction of the matrix and proper determination of coordinates from eigenvectors can ensure that distance between words in the geometric space is representative of the numeric value measure of the words' similarity.

Hendrickson fails to specifically disclose associating and displaying labels in connection with selected peaks of surface map, wherein a label represents a significant term of the data records associated with the selected peak. However, Becker teaches associating and displaying labels in connection with selected peaks of surface map, wherein a label represents a significant term of the data records associated with the

selected peak (col. 7, line 55 to col. 11, line 67; figs. 6-7b and 8). In other words, Becker discloses the splat opacity is a function of the weight of aggregated data points in a corresponding bin. A splat is drawn at each bin location to form an image that visually approximate an original scatter plot of the data thus depicts the selected peaks of the surface map. Therefore, it would have been obvious for one of ordinary skill in the art to combine associating and displaying labels in connection with selected peaks of surface map, wherein a label represents a significant term of the data records associated with the selected peak of Becker to the system of Hendrickson because it would have enable graphically depicted the opacity function using large and small global scale factors (Becker: col. 7, line 55 to col. 11, line 67; figs. 6-7b and 8).

Re claim **21**, Hendrickson discloses a computer-implemented method for generating graphical surface map visualizations from a set of data records, comprising the steps receiving a plurality of data records containing a plurality of terms (col. 1, lines 10-49); generating a first surface map representation of data records corresponding to the significance of the terms in the data records (col. 7, line 41 to col. 8, line 11); enabling the user to define at least two of terms as equivalent terms (col. 6, line 18 to col. 7, line 38). In other words, Hendrickson teaches locating related words in geometric space for data mining. The related words are located relative to the relationships among the meaning of the words. Each word is located in the geometric space at coordinates determined from the eigenvectors and eigenvalues. Thus, proper construction of the matrix and proper determination of coordinates from eigenvectors can ensure that distance between words in the geometric space is representative of the

numeric value measure of the words' similarity. In addition, input from a user can tailor the information displayed to meet the user's specific requirements. For example, user input can direct the selection of an aspect for display, such as a subset of the geometric space. Additionally, user input can direct the display of only words having certain attributes. Furthermore, user input can direct the display of detailed information about a particular word, such as more complete identification of individual words or more detailed display of specific links among the words. Therefore data mining system can allow user to select only certain portions of the database. For example, the user can direct the display of only items with dates in a certain range or with particular origins.

Hendrickson fails to specifically disclose generating a second surface map representation of data records based on the significance of the defined equivalent terms. However, Becker teaches generating a second surface map representation corresponding to vector representations in response to selection of second surface map generation method (col. 12, line 1 to col. 15, line 50; col. 14-15; figs. 9a-10b). In that the two or more different tables represents different surface map. In addition, the variables correspond to the vector that uses to represent an intermediated position along the slider scale a user chooses. As for the terms, the variables represent the equivalent terms. Therefore, it would have been obvious for one of ordinary skill in the art to combine the step of generating a second surface map representation of data records based on the significance of the defined equivalent terms of Becker to the system of Hendrickson because it would enabled the determination of splat opacity

using interpolated weights on different surface map based on the variables (Becker: col. 12, line 1 to col. 15, line 50; col. 14-15; figs. 9a-10b).

Re claim **24**, Hendrickson discloses a computer-implemented method for generating graphical surface map visualizations from a set of data records, comprising the steps receiving a plurality of data records containing a plurality of original terms (col. 1, lines 10-49); generating a surface map representation (col. 7, line 41 to col. 8, line 11). In other words, Hendrickson teaches locating related words in geometric space for data mining. The related words are located relative to the relationships among the meaning of the words. Each word is located in the geometric space at coordinates determined from the eigenvectors and eigenvalues. Thus, proper construction of the matrix and proper determination of coordinates from eigenvectors can ensure that distance between words in the geometric space is representative of the numeric value measure of the words' similarity.

Hendrickson fails to specifically disclose receiving a substitute term. However, Becker teaches receiving a substitute term (col. 12, line 1 to col. 15, line 50; col. 14-15; figs. 9a-10b). The data visualization of Becker discloses new data visualization tool that depicts a scatter plot. A user can smoothly animate a plot along several data points. Thus the variables required to plot the data points are able to be substitute terms (i.e. terms that are replaceable). Therefore, it would have been obvious for one of ordinary skill in the art to combine receiving a substitute term of Becker to the system of Hendrickson because it would enabled the determination of splat opacity using

interpolated weights on different surface map with different variables to plot a surface (Becker: col. 12, line 1 to col. 15, line 50; col. 14-15; figs. 9a-10b).

Re claims **29 and 33**, the limitations of claims 29 and 33 are analyzed as discussed with respect to claims 1, 13, 17, 21, and 24 above.

Re claims **22-23, 25-26, and 30-31**, Hendrickson discloses a group of text units are words (col. 7, line 50 to col. 9, line 35; figs. 3a-4e). In other words, Hendrickson teaches related items are descriptive words.

Re claims **18-20, 27-28, 32, and 34-38**, the limitations of claims 18-20, 27-28, 32, and 34-38 are analyzed as discussed with respect to claims 1, 13, 17, 21, 24, 29, and 33 above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ford et al., US patent no. 5,506,937

Meyers et al., US Patent No. 5,987,470

Tesler (US patent no. 6,111,578)

Snyder et al. (US patent 6,038,561)

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ms. Thu-Thao Havan whose telephone number is (703) 308-7062. The examiner can normally be reached on Monday to Thursday from 9:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Thu-Thao Havan
Art Unit: 2672
March 24, 2003

JEFFREY BRIEN
PRIMARY EXAMINER